REMARKS/ARGUMENTS

I. Introduction:

Claims 1, 5, 7, 8, 14, 15, 21, and 22 are amended, claims 19, 20, and 23 are canceled, and new claims 25 and 26 are added herein. Claims 2, 9, and 16 have previously been canceled. With entry of this amendment, claims 1, 3-8, 10-15, 17, 18, 12, 22, and 24-26 will be pending.

II. Claim Objections:

Claims 5, 6, and 19 were objected to in the Office Action dated April 18, 2005. Claim 19 is canceled herein.

Claim 5, as amended, is believed to overcome the objections noted by the Examiner. Claim 6 depends from claim 5 and based on the amendment to claim 5, is also believed to overcome the objection.

III. Rejections under 35 U.S.C. 35 U.S.C. § 103

Claims 1, 3, 4, 7, 8, 10, 11, 14, 15, 17, 18, 21, and 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication No. US 2004/0028071 (Gehring et al.) in view of U.S. Patent Application Publication No. US 2002/0072329 (Bandeira et al.).

Claim 1 is directed to a method for coordinating access to a shared transmission medium. The method generally comprises, inter alia, recording at a master node a contact path from the master node to a new slave node, generating a schedule of wireless transmission for nodes of the wireless communication network, and distributing the schedule from the master node to nodes controlled by the master node.

The schedule precludes collisions between simultaneous transmission by any pair of nodes controlled by the master node including pairs of nodes that do not hear each other's transmissions. Claim 1 has been amended to clarify that the wireless communications network is made up of a master node, a plurality of slave nodes, and at least one submaster node. Each of the slave nodes and the submaster node are controlled by the master node. The claim has further been amended to clarify that the new slave node is able to communicate directly with the submaster node and is out of range of the master node, and that the contact path includes the submaster node.

Gehring et al. is directed to an apparatus and method for managing variable-sized data slots with timestamp counters within a TDMA frame. As shown in Fig. 1 the network system includes a master transceiver device 12 and one or more slave transceiver devices 14a-14n. All slave devices hear each other's transmissions. As noted by the Examiner, Gehring et al. do not disclose a transmission schedule that precludes collisions between simultaneous transmission by any pair of nodes that do not hear each other's transmissions.

It is respectfully submitted that Bandeira does not overcome the deficiencies of Gehring et al. Bandeira et al. disclose a scalable wireless network topology system. As shown in Fig. 2, the system includes a root node 1, node 2, which serves as a repeater for locations 5 and 9, and various other nodes. Node 2 is a parent node to children nodes 5 and 9. The parent transceiver (e.g., node 2) works as a master and all of its one-hop children transceivers work as slaves (see, for example, paragraph 0051 of Bandeira et al.). Paragraph 0086 describes how a slave node first performs a slave cycle and then performs a master cycle to provide service for its own children.

Bandeira et al. specifically address methods for avoiding collisions within a branch (defined as a parent transceiver together with its one-hop children). See for example, paragraph 0045, which describes operating in two distinct frequencies for inbound and outbound transmissions or paragraph 0048, which describes power management techniques. In fact, the power management techniques are described

specifically for avoiding collisions between simultaneous transmissions from two nodes (see, paragraph 0048 lines 3-7). As noted at paragraph 0046, different branches may have simultaneous transmissions. Thus, the system is configured to avoid collisions within a branch and not between simultaneous transmission by any pair of nodes controlled by a master node including pairs of nodes that do not hear each other's transmissions.

Furthermore, since a slave node of Bandeira et al. can operate as a master node to control its children (slave nodes) separate from the root node, not all slave nodes are controlled by the original master node.

The polling scheme shown in Fig. 4 and described at paragraphs 0059 and 0060 of Bandeira et al. is simply a consecutive polling scheme that goes from one child node to the next child node. The root node has no knowledge and makes no modifications for children nodes of a parent node (that is the root's node child node). The root or parent node is only concerned with its children nodes and do not generate a schedule or allocate time slots for itself or any other nodes. Thus, there is no schedule generated at a master node which precludes collisions between simultaneous transmission by any pair of nodes controlled by the master node including pairs of nodes that do not hear each other's transmissions, as required by claim 1. There is nothing to prevent to separate branches from performing polling cycles at the same time. In fact, a repeater mode may not respond to a parent node because it is busy performing its own polling cycle.

Moreover, neither Gehring et al. nor Bandeira et al. show or suggest recording at a master node a contact path from the master node to a slave node, with the contact path containing a submaster node. Gehring et al. simply recognize a direct communication link between the master node and a slave node. As discussed above, the root node of Bandeira et al. does not need to know any information regarding a communication path to any of the children nodes, which are not in direct communication with the root node.

Applicant's invention, as set forth in the claims, is particularly advantageous in that it allows for automatic reconfiguration of the network upon admission of a new node, with the reconfigured network continuing to operate so as to avoid collisions, even between nodes that cannot hear one another. Furthermore, since the master node has control of all the nodes beneath it in the network control hierarchy and only one node transmits at a time, no two nodes transmit simultaneously even if they cannot hear one another. There is no need for the nodes to transmit and receive on different frequencies.

Accordingly, claim 1 is submitted as patentable over Gehring et al. and Bandeira et al.

Claims 3, 4, 25, and 26, depending from claim 1, are submitted as patentable for at least the same reasons as claim 1.

Claims 8, 15, and 22, and the claims depending therefrom, are submitted as patentable for the reasons set forth above with respect to claim 1.

Claim 7 has been amended to specify that the transmission schedule generated at the master node is divided into a plurality of time slots and that each of the slave nodes within communication range of the master node has at least one of the of time slots allocated thereto for transmission from the slave node to the master node. The claim has been further amended to specify that at least one of the time slots is allocated for the submaster node and the slave node that is out of range of the master node and able to communicate directly with the submaster node.

As previously discussed, Bandeira et al. do not show or suggest a time slot allocated for both a submaster node and a slave node which is able to contact the submaster node but not within range of the master node. Applicant's invention generates a schedule at the master node that divides transmission time for the master node as well as times allocated to each of the slave nodes. The transmission time slot reserved for a submaster node includes extra time for the slave node that is out of range with the master node. In contrast, the root node of Bandeira et al. simply use a

consecutive polling scheme with no knowledge of which nodes or how many nodes it is receiving transmissions from during a polling cycle.

Accordingly, claim 7 is submitted as patentable over the prior art of record.

Claims 14 and 21 are submitted as patentable for the reasons discussed above with respect to claim 7.

Claims 5, 6, 12, 13, 19, 20, and 23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,377,805 (Anvekar et al.) in view of U.S. Patent No. 6,785,510 (Larsen) and further in view of Bandeira et al.

With regards to independent claims 5, 12, 19, and 23, it is respectfully submitted that Anvekar does not show or suggest a submaster node receiving and forwarding registration information from new nodes to a master node. There is no teaching in Anvekar of any communication occurring between a newly contactable node (unit 205) and the master node (unit 203) through a selected wireless node (unit 206). Although Anvekar discusses unit 206 communicating with unit 203 and unit 205, there is no suggestion that unit 205 communicates with unit 203 through unit 205. Hence, the Applicant submits that Anvekar does not teach of or reasonably suggest a method which includes receiving registration information from a newly contactable slave node at a selected wireless node, and forwarding the registration information from a submaster node to a master node.

Furthermore, as discussed above, Bandeira et al. do not show or suggest transmitting a transmission time allocation from a submaster node to a slave node in communication with the submaster node and out of range of the master node. Bandeira et al. use a parent node operating as a master node to control transmission times of a child node, rather than generating a schedule for the nodes at the root node and receiving a time slot allocation from the root node at the parent node and passing it onto the child node.

Larsen does not remedy the deficiencies of Anvekar et al. and Bandeira et al.

Accordingly, independent claims 5, 12, 19, and 23, and the claims depending therefrom, are submitted as patentable over the prior art cited.

IV. Conclusion:

For the foregoing reasons, Applicant believes that all of the pending claims are in condition for allowance and should be passed to issue. If the Examiner feels that a telephone conference would in any way expedite prosecution of the application, please do not hesitate to call the undersigned at (408) 399-5608.

Respectfully submitted,

Cindy S. Kaplan
Reg. No. 40,043

P.O. Box 2448
Saratoga, CA 95070
Tel: 408-399-5608
Fax: 408-399-5609